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ABSTRACT

This paper on the 21st century information environment begins with a section that discusses the impact of e-commerce over the next ten years. The second section addresses government focus areas, including ensuring a telecommunications infrastructure, developing the IT (information technology) industry, promoting innovation and entrepreneurship, establishing a regulatory regime that will provide a secure online environment for users and foster e-commerce, ensuring that users have IT skills, leading by example through the provision of government information and services online, and encouraging businesses and the community to get online. The third section considers two core issues for the library and information sector in the new economy, i.e. how it will improve current business activities, and how it will take advantage of new business opportunities. The fourth section describes the challenges ahead for the library community, including attracting a broader cross section of the community into the library, allocating staff time and resources, training staff, and providing access to standard computer applications (e.g., word processing, spreadsheets) as well as the Internet. The fifth section outlines necessary IT education and skills. (MES)

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Proceedings

The 21st Century Information Environment

Rod Badger

Thank you for asking me to talk about issues which I believe are among the most challenging facing society today.

We are in a world where digital technologies are providing a plethora of new opportunities and choices in people's lives, but at the same time, creating a host of new complexities and uncertainties.

Australia must embrace this global phenomenon or risk missing out on the potentially vast economic and social benefits that are on offer, including the very real prospect of forever rendering obsolete the tyranny of geographic distance.

In the 21st century we cannot afford to assume the information revolution will power itself. We have to drive initiatives. We have to be pro-active. And we have to make absolutely certain that we have not only the physical infrastructure in place but also the social infrastructure.

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E-commerce beyond 2000

Impact of E-commerce over the next 10 years:

- Increase in national output of 2.75%
- Real investment up 4%
- Consumption up 3%
- Real wages up 3.5%
- Aggregate employment up 0.5%
- Real exchange rate up 2%

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Figure 1

A recent E-Commerce Beyond 2000 report illustrated how e-commerce is likely to work its way through the economy. The report involved a rigorous economic analysis by the Allen Consulting Group using the MONASH model of the economy. The analysis showed that:

- E-commerce will increase Australia's gross domestic product by 2.7% by the year 2007. This means over 10 years, the impact of e-commerce will be roughly equivalent to one year's extra economic growth.
- We see a rise in GDP, wages and employment - an unusual combination driven by the productivity gains of e-commerce.

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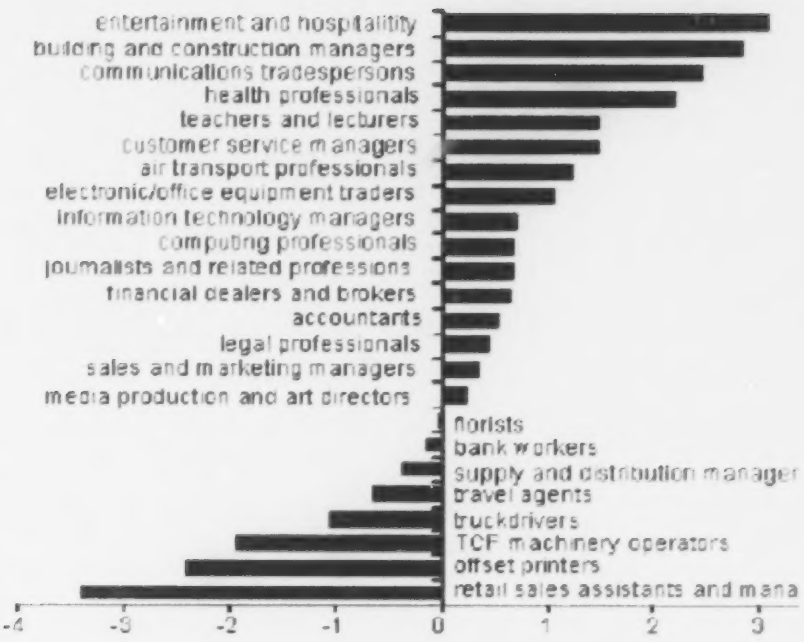
Occupational change



The study also looked at employment implications.

- There are going to be major shifts in occupations. Governments will have a major role in facilitating the transition through training schemes and in making sure that there are adequate skilled people in the areas of high demand through our education system and our migration policies.
- As I noted earlier, there will be a net growth in jobs.
- The occupations that grow are generally ones that are well paid, well educated and contribute to high value adding.

Governments are often derided for not being dynamic enough, for being too safe - it's in the IT sector where we have an opportunity to show a more proactive and far-reaching policy response.

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Government focus areas

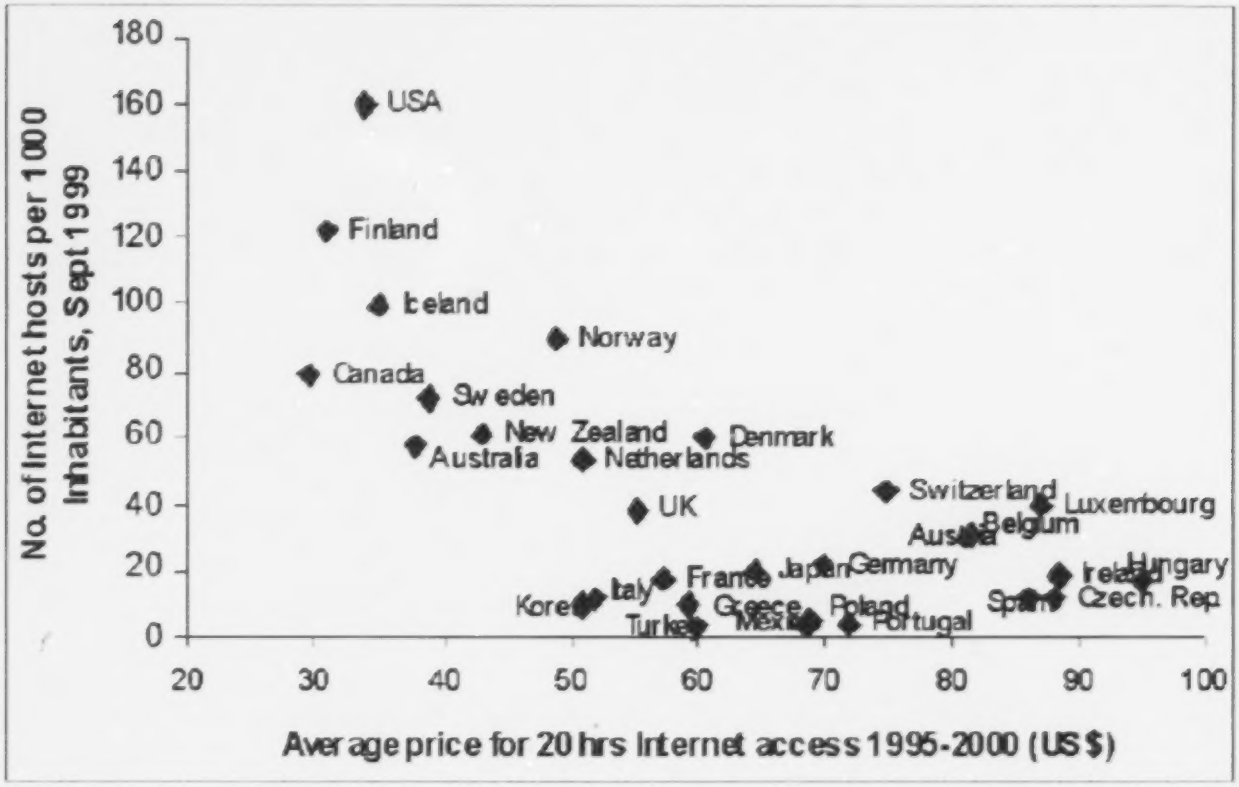
- Telecommunications Infrastructure
- Developing the IT industry
- Promote innovation, entrepreneurship
- Regulatory regime
- IT skills
- Lead by example - Government Online
- Getting everyone online

Figure 3

The key areas the Government has been focusing on in its path to becoming a robust knowledge economy include:

- ensuring we a have a sophisticated and cost competitive telecommunications infrastructure;
- developing our information technology industry;
- supporting a conducive environment for the information economy in areas as innovation, entrepreneurial culture, and tax reform;
- Establishing a regulatory regime that will provide a safe, secure and certain online environment for users and foster the widespread take-up of electronic commerce;
- Ensuring that all levels of society have the skills required to take maximum advantage of the opportunities provided by the information economy; and
- Leading by example through the provision of government information and services online wherever this is appropriate;
- encouraging businesses and the community to get online.

Internet access costs OECD, Is There a New Economy? June 2000



Telecommunications Infrastructure

Telecommunications is the backbone of the Internet and the information economy. Government's deregulation of the telecommunications industry has been crucial to reduce phone costs and thereby encourage online activity. Australia now ranks fifth in the world in terms of average price for 20 hours Internet access over the period 1995-2000. [OECD] Australia ranked ninth in terms of the number of Internet hosts per 1000 inhabitants. [Sept-99]

Networking the Nation is the Commonwealth's five year $250 million regional telecommunications infrastructure fund to help bridge the gaps in telecommunications services, access and costs between urban and non-urban Australia. NTN aims to assist the economic and social development of regional, rural and remote Australia by funding projects which

- Enhance telecommunications infrastructure and services in those areas;
- Increase access to, and promote use of, services available through telecommunications networks; and
- Reduce disparities in access to such services and facilities.

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Regulation

Impact of E-commerce over the next 10 years:

- Electronic Transactions Act (1999)
- Privacy Bill
- National Electronic Authentication Council
- Gatekeeper

Figure 5

Regulatory

We have established a national legislative framework through the Electronic Transactions Act, which was passed about a year ahead of the US; our Privacy Bill will support and strengthen self-regulatory privacy protection in the private sector. Through the National Electronic Authentication Council and our Gatekeeper project we are building consumer and industry confidence in e-commerce transactions.

Government Online

- Deliver all appropriate Commonwealth services electronically on the Internet by 2001
- Establish a Government Information Centre through the Office for Government Online as a main point for access to information about government services
- Establish electronic payment as the normal means for Commonwealth payments by 2000
- Establish a government-wide intranet for secure online communication

Figure 6

Government Online

The Commonwealth's Online Strategy aims to ensure that agencies meet their commitment to have all appropriate services delivered online by 2001. The strategy contains key minimum standards in sensitive areas such as privacy, security and access (including for disabled Australians and people living in regional areas).

Over 75 percent of Commonwealth agencies responded to a recent survey of Government online readiness, with more than 95 per cent of these agencies currently paying some portion of their suppliers electronically.

This illustrates that there are no substantial impediments to electronic payment, and our goal of paying all suppliers electronically by the end of this year is a realistic one.

Nearly 90 per cent of agencies reported that they expect to be able to trade electronically using open standards by the end of next year.

Australia is now a world leader in harnessing the opportunities of the digital era, addressing the issues involved in creating, distributing and accessing content in the online environment.

Government funding

- Information Technology OnLine (ITOL)
- AccessAbility
- Online Public Access Initiative (OPAI)
- Networking the Nation (NTN)
- Building Additional Rural Networks (BARN)

Figure 7

Community Access

In recent years, the Commonwealth Government has funded a wide range of programs and projects to enhance community access to the information economy. In January 1999 the Government outlined its vision for Australia (Strategic Framework for the Information Economy) and set a national framework to achieve it.

The Government's multi-faceted approach to this issue comprises: regulatory initiatives to encourage greater competition in the telecommunications market; grants programs to fund the development of telecommunications infrastructure, community access facilities and training; a range of educational skills development initiatives; and providing government services electronically in ways that enable access for all sectors of the community, including the disabled.

The Online Public Access Intitiative (OPAI) was developed to support a number of projects enhancing public access to online services - such as the Internet - in public libraries and similar institutions. It was funded as part of the Networking the Nation project.

Business

Programs such as the Information Technology Online program is accelerating the national adoption of B2B e-commerce solutions, especially by communities of SMEs and the Networking the Nation program has funded over 400 projects to date, worth $197 million, to assist regional and rural business with their takeup of e-commerce.

NOIE is working with key sectors of the economy to help facilitate uptake of e-business where it seems to be slow. For instance, we have helped the transport sector, the backbone of commerce old and new, to develop a strategy and network which will benefit both big players and small. We worked with the sector to scope out the issues, build communities of interest and identify opportunities for improvement.

The transport sector responded well, and through the ITOL grants program we were able to respond to their proposals by funding a transport portal to bring all the players together online.

Core Issues

- How to improve current business activities
- How to take advantage of new business opportunities

Figure 8

As with these other industries, the library and information sector will have to address two core issues in the new economy:

- How will it improve its current business activities; and
- How will it take advantage of new business opportunities.

Percentage of Adult Population Connected to the Internet - 2000*

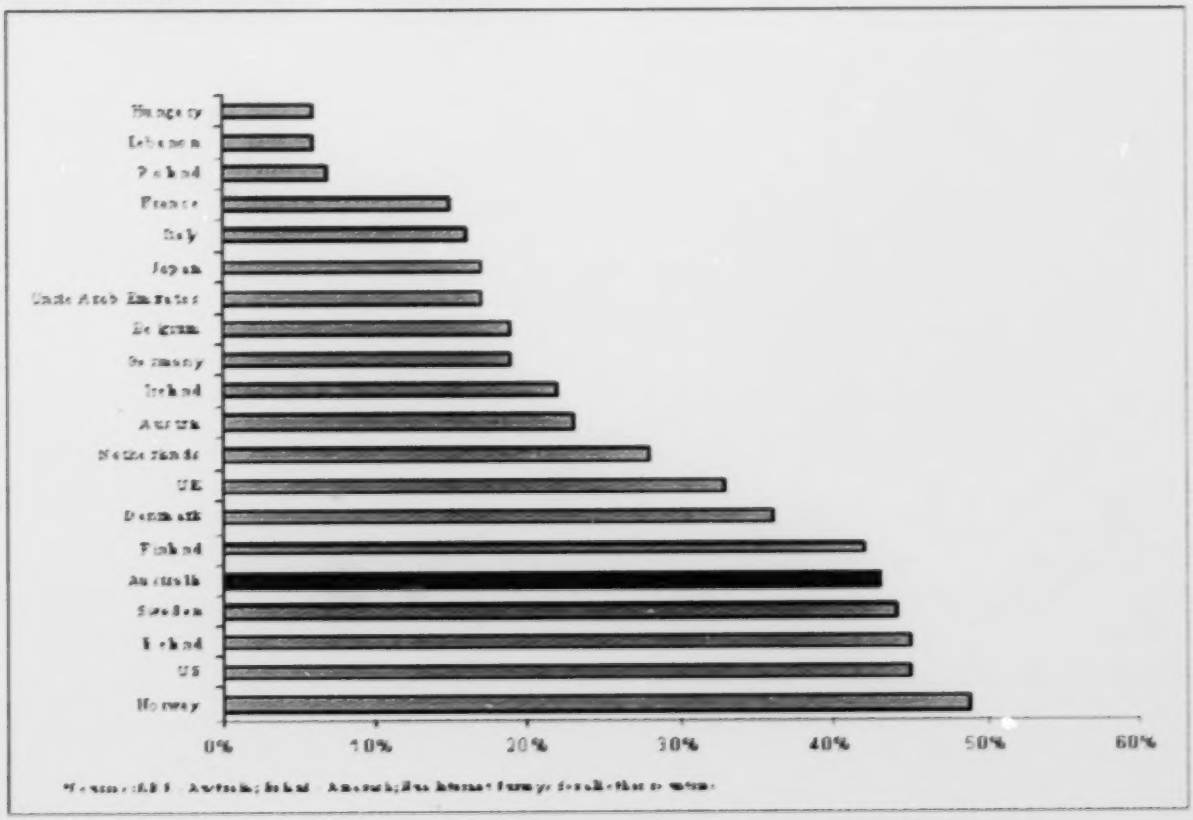

Figure 9

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Businesses Connected to the Internet by State and Territory - June 1999*

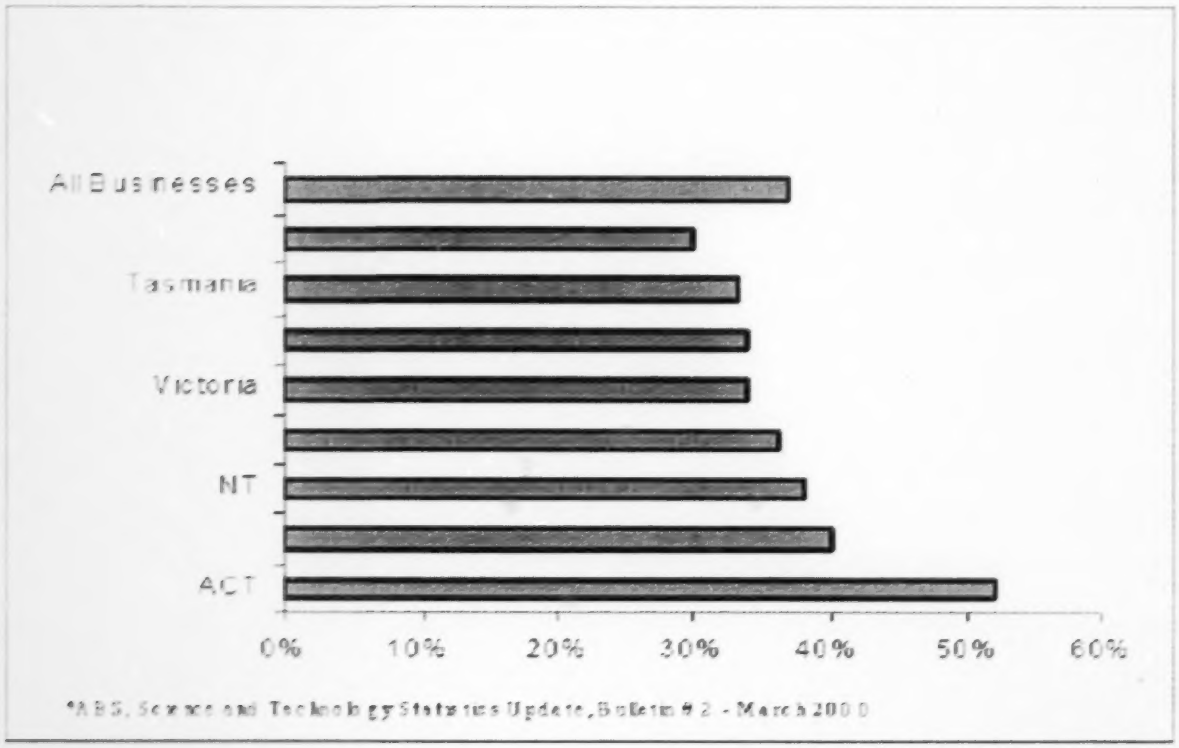

Figure 10

The developing online environment presents many opportunities for Australian products to be marketed, promoted and made accessible to a much wider audience within Australia and the rest of the world. As the information economy develops further we will see an increase in households connecting to the internet with students and parents finding it more convenient to use the internet to access information they may need in their study and business activities. Libraries will face the challenge of publishing more information electronically as the demand rises. Historically, businesses have not made use of libraries as much as they could and with an increase of information becoming available online, this will change. Libraries will need to expand their services and customer base.

Australian archives, libraries, museums, galleries have a great tradition of providing access to their collections. The digitisation of collection materials is making an extraordinary wealth of information and virtual artefacts accessible, enabling increasing numbers of people to experience, engage with, and learn from our heritage.

All sectors need sophisticated management and policy. As we are in a time of revolutionary change we need people who can see the big picture, who can see the commonalities and the differences that really matter in a situation, rather than the surface conventions. In revolutionary times, you need the vision to translate the core values and service functions that are the heart of information service into the new circumstances.

Librarians have this unique mix of expertise. No other professional group comes close to combining the knowledge of information and its organisation, the information technology to support information resources, and an understanding of people in relation to information - what their needs are, how they look for it, how to help them.

The challenge ahead

- Attracting a broader cross section of the community into the library
- Staff time allocation and resources
- Training
- Internet only or a range of PC applications

Figure 11

The challenges ahead for the library community continue to include:

- Using the provision of the internet access as a lure to attract a broader cross section of the community into the library. Anecdotal evidence suggests that book borrowing rates increase with the provision of internet access.
- Staff time allocation and resource issues. Ideally, library staff should be available to assist new internet users, but obviously such support has ongoing resourcing implications.
- Staff training - for the benefit of users but also to optimise staff's skill and career development.
- Internet only or range of PC applications? The availability of access to standard PC functions, such as word processing, spread sheets, desk top publishing and printing facilities enhances outcomes for users.

One of the areas that is often overlooked in the rush to get services online is the back-end administration. Throughout our work with Government and industry we have seen time and again that the greatest opportunities for cost reduction and efficiency are in the back-end business processes like human resources, financial support, purchasing processes, facilities administration and so on. Investment in IT and e-commerce should embrace both improvements to business process as well as developing new services.

This situation presents a challenge we all have to address. Among other things, rural, regional and remote archives, libraries, museums and galleries should be encouraged to become "online hubs", making onsite access to the Internet available to the communities within which they belong.

Libraries should ideally be one of a range of internet access points available to the local community. Other options include community sector organisations, schools and universities, commercial cafes, etc. Multiple access points within a geographic community are most likely to serve and benefit the maximum number of people. Libraries alone are not enough.

Education / Skills

- IT & T Skills Exchange
- Migration systems monitoring
- Ongoing IT & T Career awareness raising activities
- Research
- Collaboration with other Government agencies

Figure 12

Education/Skills

The information age is also transforming the education and training system itself. In-demand IT skills do not remain static and need to be constantly upgraded as technology changes. This will inevitably result in a greater emphasis on lifelong learning, filler and bridging courses, industry-based training and IT education delivered at the community level.

Education systems will have to become significantly more flexible to respond to constant changes in IT skill requirements. This will require a closer partnership between governments, education providers, the IT industry and other industries where IT skills are a major business input.

Increasingly, we expect business owners will train themselves and their employees to meet their companies expanding IT skills needs. In-house training is a cost effective alternative to hiring experienced IT staff. It can provide long term solutions and benefits to both Australian business and employees.

Moreover, it is in the interest of business and government to work together to ensure we do not create a nation of IT haves and have nots. Australians who cannot access a PC or don't know how to turn on their computer face being sidelined from a society where IT is becoming more central to every facet of life with each passing day. This is why programs such as AccessAbility, Networking the Nation, and online awareness raising programs are all helping to target groups who may otherwise be overlooked.

To this end, NOIE is continuing its work which will encourage and assist the community sector (urban and rural) to get online and to get their clients/members online.

Conclusion

I would call on all of you to look at ways of making a strategic and long-lasting investment not only in improving productivity but in helping to drive demand for content and online services. Doing this will help ensure that all Australians can be active participants in the information economy.

A nation where everyone has acceptable levels of IT competence, where everyone has the option of being connected to each other builds on our natural assets, on our natural competitive strengths and advantages. It is the sea change needed to equip this nation to take the next great leap forward. We may be clever but we need to get smarter.

Thank you

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